

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
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 LOS ANGELES, CA 90025

**PCT**

**NOTIFICATION OF TRANSMITTAL OF  
 THE INTERNATIONAL SEARCH REPORT AND  
 THE WRITTEN OPINION OF THE INTERNATIONAL  
 SEARCHING AUTHORITY, OR THE DECLARATION**

(PCT Rule 44.1)

Applicant's or agent's file reference 6518.P002PCT	Date of mailing (day/month/year) <b>18 JAN 2005</b>
International application No. PCT/US04/17845	FOR FURTHER ACTION See paragraphs 1 and 4 below
Applicant INTELLAMBDA SYSTEMS, INC.	International filing date (day/month/year) 04 June 2004 (04.06.2004)

1.  The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 740 14 35

For more detailed instructions, see the notes on the accompanying sheet.

2.  The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3.  With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.  
 no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

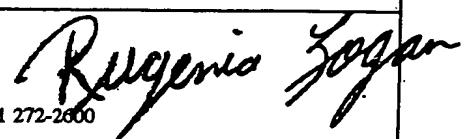
See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/ US  
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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6518.P002PCT	<b>FOR FURTHER ACTION</b> <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. PCT/US04/17845	International filing date (day/month/year) 04 June 2004 (04.06.2004)	(Earliest) Priority Date (day/month/year) 06 June 2003 (06.06.2003)
Applicant INTELLAMBDA SYSTEMS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**
  - a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
  - b.  With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.
2.  Certain claims were found unsearchable (See Box No. II)
3.  Unity of invention is lacking (See Box No. III)
4. With regard to the title,
  - the text is approved as submitted by the applicant.
  - the text has been established by this Authority to read as follows: ..
5. With regard to the abstract,
  - the text is approved as submitted by the applicant.
  - the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. With regard to the drawings,
  - a. the figure of the drawings to be published with the abstract is Figure No. 4
    - as suggested by the applicant.
    - as selected by this Authority, because the applicant failed to suggest a figure.
    - as selected by this Authority, because this figure better characterizes the invention.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/17845

**Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)**

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

The abstract is too long (PCT Rule 8.1(b)). The abstract must be less than 150 words, or 200 words when no figure is to be published.

**NEW ABSTRACT**

A number of wavelength division multiplexing (WDM) access nodes employ a distributed search based scheme to build network topology databases based on a set of connectivity constraints (1230). A set of one or more connectivity constraints that include quality of service (QoS) based criteria are applied on a physical network topology of a WDM optical network to divide that optical network into separate service levels (910) whose topologies (920) are determined for each of the service levels. A number of WDM access nodes of an optical network employ a source based scheme to establish communication paths (1145). Each of these access nodes stores a set of one or more network topology databases based on a set of connectivity constraints. Each of these nodes employs a messaging scheme to propagate notification of changes in the optical network to other nodes to maintain their databases.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/17845

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04J 14/00  
 US CL : 398/49

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 398/49

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JUKAN et al. Constraint-Based Path Selection Methods for On-Demand Provisioning in WDM Networks.	1-3,30-31,33,38-39,41,46-47,52,104-107,111-114,137-139,141,144,146-150,152-156,160
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Y	IEEE INFOCOM 2002, pages 827-833.	4-29,32,34-37,40,42-45,48-51,53-103,108-110,115-136,140,142-143,145,151,157-159,161-190,192-195
Y	US 2003/0016414 A1 (SOLHEIM et al) 23 January 2003 (23.01.2003), FIG. 2A and FIG. 3	4,10,17,77,82,145,151,159,165
Y	JUKAN et al. Service-Specific Wavelength Allocation in QoS-Routed Optical Networks. IEEE 1998, page 2272	5-6,11,18,26-27,48-50



Further documents are listed in the continuation of Box C.



See patent family annex.

•	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

16 December 2004 (16.12.2004)

Date of mailing of the international search report

18 JAN 2005

Name and mailing address of the ISA/US

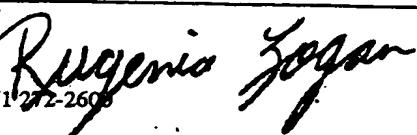
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**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US04/17845

**C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DATE. An Introduction to Database Systems. Addison-Wesley, 1986, pages 29-41.	6,27,58,78,83,108- 110,115-117,122- 123,129-130,132- 136,143,164 7-29,
Y	US 2003/0090995 A1 (ILLIKKAL et al) 15 May 2003 (15.05.2003), paragraph [0035]	19-20,28- 29,32,34,40,42,51,59
Y	BRADEN et al. RFC-2205. Resource Reservation Protocol (RSVP) - Version 1 Functional Specification. IETF, September 1997. pages 34-35.	21-29,161-166,188
Y	MOY. RFC-2328, OSPF Version 2. IETF, April 1998. Section 12.2.	35-37,43-45,53- 58,60-103,142-143
Y	GOLMIE et al. A Differentiated Optical Services Model for WDM Networks. IEEE Communications Magazine, February 2000, FIG. 3 and Table 1	70-72,94-95,100- 101,157,166 74
Y	US 2002/0120766 A1 (OKAJIMA et al) 29 August 2002 (29.08.2002), FIG. 5.	76-78,140
Y	US 2003/0020982 A1 (RYCHLICKI) 30 January 2003 (30.01.2003), paragraph [0025].	118-131
Y	US 2003/0035166 A1 (ZHANG et al) 20 February 2003, paragraph [0053].	133,158
Y	US 2003/0074443 A1 (MELAKU et al) 17 April 2003 (17.04.2003), paragraph [0056].	167-190,192-195
Y	US 2002/0030864 A1 (CHAUDHURI et al) 14 March 2002 (14.03.2002), paragraphs [0125] to [0134].	186,193
Y	FRANCISCO et al. End-To-End Signaling and Routing for Optical IP Networks. IEEE 2002, FIG. 5.	
Y	POSTEL. RFC-791, Internet Protocol. IETF September 1981, page 16.	